

Cache River National Wildlife Refuge

Annual Water Management Plan

Calendar Year 1991

A. WATER SURFACE ELEVATIONS FOR CALENDAR YEAR 1991

<u>Month</u>	<u>CACHE RIVER</u>		<u>WHITE RIVER</u>	
	<u>High</u>	<u>Low</u>	<u>High</u>	<u>Low</u>
January	12.5	9.9	30.3	27.9
February	9.8	7.0	27.8	23.7
March	9.4	4.1	23.3	15.0
April	11.7	8.7	23.1	30.5
May	11.6	8.7	30.6	25.1
June	8.5	5.3	25.0	20.3
July	8.0	5.1	21.7	13.4
August	8.1	6.3	13.6	10.3
September	9.3	4.3	13.8	8.8
October	9.6	2.7	16.1	8.8
November	10.8	6.7	25.8	19.6
December	10.5	8.6	28.5	26.0

Cache River is at flood stage when the gauge at Patterson, Arkansas reaches 8 ft. The White River reaches flood stage when the gauge at Claredon, Arkansas is at 26 ft.

Flooding from the Cache and White Rivers is a major factor in the ecology of the refuge and surrounding lands. The physical and biological features of the refuge are representative of past and present flooding regimes. Flooding typically occurs over 100 days annually. During 1991 flooding was recorded on the Cache River at Patterson on five occasions totalling 197 days. Flood waters cover a significant portion of the refuge when the Cache River reaches 10 ft. The flood waters recharge the ecosystem and provide excellent habitat for migratory waterfowl.

1991 Cache River Flooding Incidents

January 1	-	February 25	55 days
March 28	-	June 2	67 days
August 31	-	September 16	17 days
October 30	-	November 16	17 days
November 21	-	December 31	41 days

Total	197
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Eight water control structures are used on the refuge to flood a 800 acre green tree reservoir and 800 acres of field impoundments. An additional 1,000 acres of shallow water habitat was provided by requiring cooperative farmers to rebuilt rice levees after harvest. These areas are flooded by either catching runoff or trapping flood water behind the structures.

A.2 Effects of Past Year's Water Levels on the Ecology of Management Units.

1. Water Supply for Refuge GTR's, Field Impoundments, and Other Floodable Areas

Rainfall and floodwaters filled all impoundments at the beginning of the year. Falling river levels began to lower water levels by March. Efforts began in March to drain the GTR and field impoundments that are managed by cooperative farming agreements. Several drainage efforts were hampered by beaver activity. Beaver control practices were used to expedite drainage efforts.

The existing structure at Plunkett farm collapsed during efforts to drain the area. The structure was dug out to facilitate drainage.

Heavy rains in April reflooded much of the area. Flooding conditions prevailed well into the planting season causing delays and in some cases necessitating replanting of cooperative farm crops.

During the summer and early fall management efforts were directed toward improving water management capabilities on the Dixie and Plunkett farms. A 36-inch pipe with 6-ft. riser was installed at Dixie and portions of two levees were raised. These additions will provide better water management on additional acreage in the future. At the Plunkett farm, the old 36-inch pipe was replaced with a 42-inch pipe. Screw-gates were installed on each end of the pipe to allow runoff and/or floodwater backflow to be trapped. Completion of these two projects will provide approximately 600 acres of additional shallow water areas in the future. This will bring the water controlled acreage to 800 acres of GTR and 1,400 acres of shallow water areas.

All stop-log structures were closed in October. Heavy rains during the last week of October provided rising flood water to trap behind screwgate structures. All impoundments and many low areas of the refuge were flooded during the first three weeks of November.

2. Effects of Water Levels on Habitat and Wildlife.

Water levels during late winter provided habitat for a variety of migrating species. Mid-winter waterfowl surveys recorded 177,000 ducks and 34,000 geese on the refuge. Twenty-seven white pelicans were observed on the Plunkett tract on March 26. Approximately 20,000 ducks were present on the refuge until mid-March.

The late spring flooding of the refuge should have provided ideal early brood rearing habitat for wood ducks. By the time these flood waters receded, the majority of these ducks were at flight stage.

Heavy rains in late October and a early cold front bring 100,000 ducks and 25,000 geese to the refuge in October. Much of the refuge remained flooded during the first three weeks of November. Flood waters receded during November before rising again in December. By late December waterfowl numbers had climbed to 250,000 ducks and 218,000 geese. The new water control structures at Plunkett farms provided approximately 600 acres of flooded habitat. This area was in sanctuary and on more than one occasion over 75,000 ducks were observed at this site.

B.2 A Statement of Objectives for the 1992 Water Levels

The water level objectives for January through February will be to have all impoundments at or near full pool. This level will provide the greatest amount of feeding, resting and loafing habitat for migratory waterfowl.

Beginning in March, efforts will be directed towards draining the GTR and impoundments to be cooperative farmed. Drainage will be monitored and beaver control utilized as necessary to safeguard bottomland hardwoods and permit the timely planting of refuge crops.

Impoundments to be managed as moist soil units will be drawn down as allowed to evaporate beginning in May. Water levels and vegetative response will be monitored to determine future management plans for these areas.

Water control structures will be closed or opened as the situation warrants to begin flooding the GTR and moist soil impoundments in early October. As farmed impoundments are harvested, the water control structures associated with these units will be set to catch water. In addition, approximately 1,000 acres of rice fields will be managed to hold winter water. This management should occur immediately after harvest and include rebutting levees, closing gates, and rolling rice stubble. The refuge's share of rice will be left in the field.